

PARKING EFFICI

PERPUSTAKAAN UMP



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ARADE, KUANTAN

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ABSTRACT

Kuantan Parade is located in the middle of Kuantan town. This shopping complex area is one of the most compact business district in Kuantan. Shoppers to this malls come not only from this capital city of Pahang, but also from the neighbouring northern east coast states of Terengganu and Kelantan. This circumstances makes this area suffered from insufficient parking spaces that resulting in heavy traffic congestion especially during weekend. The objective of this research is to identify and locate the parking area that is available within the area. Basically based on the observation, we are going to determine the level usage of the parking area in term of demand versus supply. The results shown that, consumers prefer to park their vehicle near to the destination when the existing parking lots are not enough that leads to parking problems and traffic congestion. Action must be taken by the authority by providing more new parking spaces at strategic area.

ABSTRAK

Kuantan Parade terletak di tengah bandar Kuantan. Pusat membeli-belah ini merupakan salah satu kawasan perniagaan yang paling padat di Kuantan. Pembeli di pusat membeli-belah ini tidak hanya datang dari ibu kota Pahang, tetapi juga dari negara-negara jiran utara pantai timur iaitu Terengganu dan Kelantan. Situasi yang berlaku di kawasan ini mengakibatkan kawasan ini mengalami kekurangan dari segi tempat meletak kenderaan, kesesakan lalu-lintas yang sangat teruk khususnya pada hujung minggu. Secara umumnya, tujuan kajian ini diadakan adalah untuk mengenal pasti dan mencari tempat meletak kenderaan yang boleh digunakan berdekatan kawasan tersebut. Berdasarkan hasil pemerhatian, kita akan menentukan tahap penggunaan kawasan tempat meletak kenderaan berlawanan bekalan. Hasil yang diperolehi daripada pemerhatian tersebut menunjukkan bahawa, pelanggan lebih memilih untuk meletakkan kenderaan mereka berhampiran dengan destinasi ketika tempat letak kereta yang ada tidak cukup. Situasi ini sering kali mengakibatkan berlakunya masalah untuk meletakkan kenderaan dan kesesakan lalu - lintas. Tindakan harus diambil oleh pihak berkuasa dengan menyediakan ruangan tempat meletak kenderaan yang lebih baru di kawasan yang lebih strategik.

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CHAPTER 1

INTRODUCTION

1.1 Background of study

Parking space is a basic and important public facility in urban areas. Problems of parking space are said to be always occurring in urban areas, especially in the city centre or busy commercial and services zones. In Malaysia, the common parking system adopted is shared-parking turn-time system, whereby members of the public share limited parking space in the city centre and have to take turns to keep their vehicle temporarily in parking lots. Parking is an essential component of the transportation system. Vehicles must park at every destination. A typical automobile is parked 23 hours each day, and uses several parking spaces each week. Parking convenience affects the ease of reaching destinations and therefore affects overall accessibility. This study will highlight existing parking problems for Kuantan Parade in city centre of Kuantan. It is located within city centre and are suffering from insufficient parking spaces that resulting in traffic congestion as well.

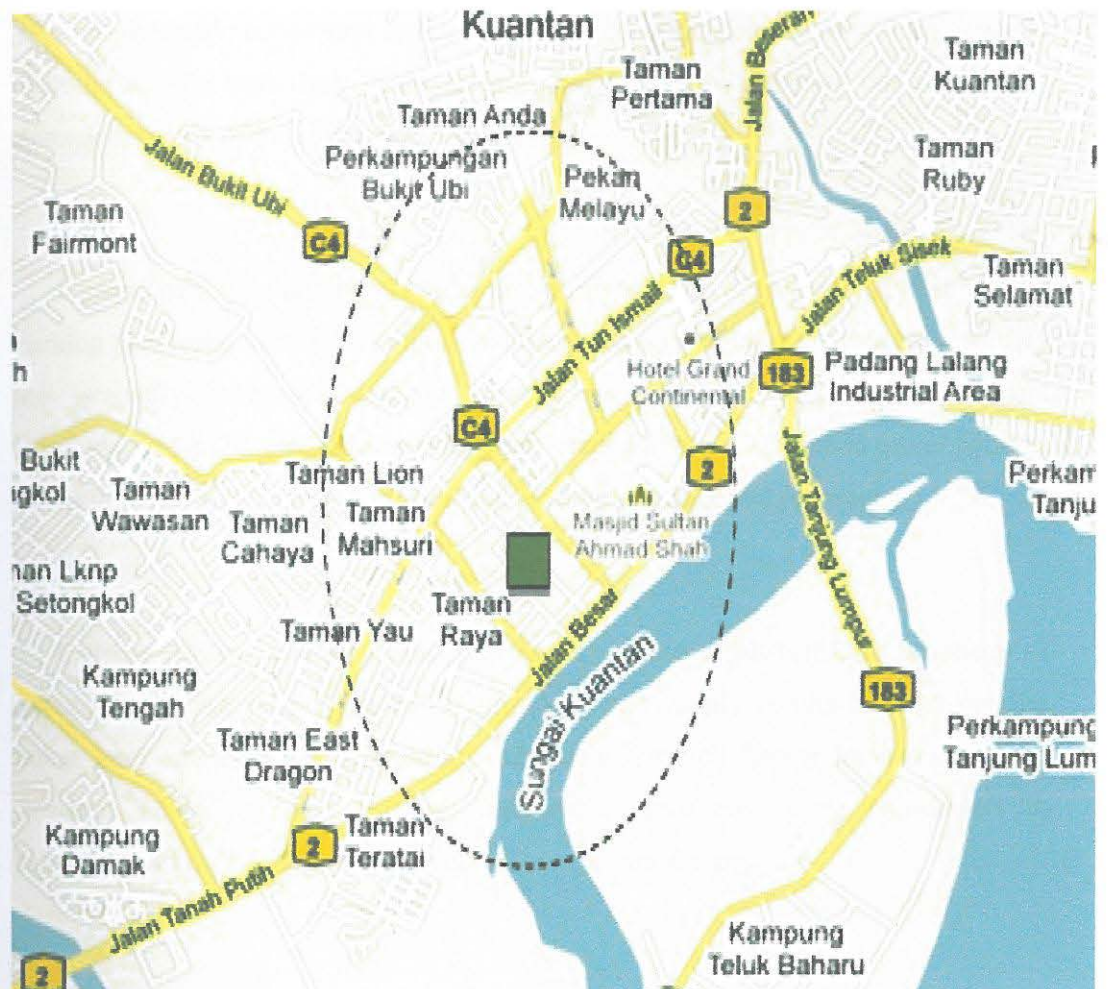


Figure 1.1 Location of Kuantan Parade, Kuantan

1.2 Problem statement

City centers are said to be suffering from insufficient parking space, forcing people to park their vehicles on road shoulders or outside the gazette parking lots. This causes traffic congestion and arouses question of sufficiency of parking space in such areas. The basic task in addressing this issue is by carrying out supply and demand analysis of parking space.

Current parking planning practices are inefficient and often ineffective at solving parking problems. Minimum parking requirements tend to be excessive because they are generally based on demand surveys performed in automobile-dependent locations, and so require more parking than needed in areas with good travel options, accessible land use, or transportation and parking management programs.

Current parking planning practices tend to create a self-fulfilling prophecy of excessive parking supply, under pricing (abundant supply results in most parking being free) and increased automobile-dependency, which further increases parking demand. These practices are also inequitable since they force non-drivers to subsidize parking costs, reduce travel options for non-drivers.

There are better ways to determine how much parking to supply at a particular location. Parking regulations can be more accurate (reflecting geographic and demographic factors -- such as land use mix and residents' income levels -- that affect parking demand) and flexible (allowing requirements to be reduced in exchange for implementation of various management strategies, such as those described below, that encourage more efficient use of supply).



Figure 1.2



Figure 1.3

Figure 1.2 and 1.3 People park their vehicles on road shoulders or outside the parking lots which causes traffic congestion and arouses question of sufficiency of parking space in that area.



Figure 1.4 Traffic congestion due to long parking queue during peak hours.



Figure 1.5 Pedestrian using the inappropriate way to cross the road. It might cause traffic jam along the road.

1.3 Objective

The main purpose for conducting this studies are :

- 1.3.1 Identify and locate the parking available area within the study area shops and offices at Kuantan Parade.
- 1.3.2 Determine the level of usage of the parking area, in term of demand versus supply.
- 1.3.3 To determine the parking beat survey through statistic value.

1.4 Scope of study

- 1.4.2 Identify the parking areas within Kuantan Parade.
- 1.4.3 To recommend the suitable site for parking lots by providing adequate number of parking lots that can meet the demand.
- 1.4.4 The study will cover both public (MPK), private parking (METRO) and on-street parking.

1.5 Significant of study

The study is conducted as to provide data for the ongoing traffic master plan study undertaken by the Project Team of FKASA lead by Ass. Prof Ir Adnan Zulkiple.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The activities in a city is mainly concentrated in the Central Business District (CBD). Our case study is at Kuantan Parade parking as mentioned earlier. These activities demand more parking spaces but increasing the number of parking spaces is restricted by the limitation of land area. Parkers' behavior in choosing a parking location, such as on road parking, on surface and in multistory building, are distinct by trip purpose and other factors. It reveals that the effectiveness of the parking location usage can be improved if the parkers' behavior in choosing parking location is known. For planning purposes, knowledge about parkers' behavior can also support the allocation of parking demand according to the parking location.

2.2 Parking space

A parking space is a location that is designated especially for parking, either paved or unpaved.

Parking spaces can be in a parking lot, in a parking garage or on a city street. It is usually designated by a white-paint-on-tar rectangle indicated by three lines at the top, left and right of the designated area. The automobile fits inside the space, either by angled parking, perpendicular parking or parallel parking.

Depending on the location of the parking space, there can be regulations regarding the time allowed to park and a fee paid to use the parking space. When the demand for spaces outstrips supply vehicles may overspill park onto the sidewalk, grass verges and other places which were not designed for the purpose.

At places where most visitors and employees use their car to access place, the parking lot usually takes up more land area than the buildings. This is at least true for shopping centres and office buildings, unless a multi-storey park is used.

2.3 Parking lots

Parking lots near businesses, buildings, or institutions are often implicitly understood or explicitly labelled to be for the use of their respective customers or visitors, often with special vehicle spaces for the owners and employees. Parking lots around apartment buildings are often exclusively intended for parking use of their residents, although sometimes separate spaces may be provided for visitors. Such parking for businesses, offices, and residences is often free to the customers, patrons, or residents.

In most cases, especially in areas where parking is scarce, one must pay to park in a parking lot. Entry and exit access is often controlled at these type of lots to ensure those parking pay the required fee. The types of products used to enforce payment are called access controls. Automated payment, entry and exit systems can reduce the need for employees and can reduce payment losses. One way traffic spikes, automated gates and tire spikes, and signage contribute to control of a fee-based parking lot.

2.4 Facility and Area Characteristics

2.4.1 Parking facilities

There are several types of parking facilities in urban area according to existing space on the street. Below are common types of parking

2.4.1.1 On-street parking

On the street, in controlled parking area, street parking is explicitly marked either as individual parking bays or as lengths of street where parking is allowed. The bays can be counted explicitly; for lengths of road where parking is allowed, it is reasonable to use an estimate of 5 meters of curb space for each car parking space.

2.4.1.2 Off-street parking

Off-street, land and structure which are designed to be used as parking are often market with car parking space, which can be counted explicitly. However, it is common place to see yards, service roads and other areas, which were never intended as formal parking, used for parking on a regular basis.

2.4.2 Accessibility Perspectives

Accessibility is defined as the ability to connect activities while mobility is a measure of the person-miles or vehicle-miles involved in travel. Higher values for mobility could be an indicative of congestion whereas increasing accessibility is associated with reduction of congestion. The ultimate goal of most transportation is accessibility (or just access) is to find the most effective way to connect our destinations and origins, the ability to reach desired goods and services, reduce congestion and create livable neighborhoods with sustainable transportation.

This perspective considers vehicle traffic a subset of mobility, and mobility a subset of accessibility. Accessibility is evaluated based on the time, money, discomfort and risk (the generalized cost) required reaching opportunities. Individuals often think of it as convenience, that is, the ease with which they can reach what they want. The major perspectives are:

2.4.2.1 Pedestrian

A pedestrian is a person travelling on foot, whether walking or running especially in an area also used by cars. In some communities, those traveling used roller skates, skateboards, are also considered to be pedestrians.

2.4.2.2 Pedestrian Access

As we can see an increased number of origins and destinations are located within a walking distance so that people who want to go to the grocery store, the shopping complex or a shops can choose between going walking or use their cars. Although some of the places have pedestrian paths, their designs usually require pedestrians to walk distances greater to what they want to walk. Consideration should be made to separate pedestrian movements from both work site activity and motor vehicle traffic. Pedestrians should be appropriately directed with advance signing that encourages them to cross to the opposite side of the roadway.

Accessibility is then still an issue for pedestrians and non-motorized travel in general because when their trip purpose is other than pleasure travelers want to reach their destinations in the faster and most convenient way. Even though it gives pedestrians more confident to cross but will affected the traffic flow especially at area were the volume of traffic is very high. Besides that, it gives conflict between pedestrians and the driver who want to turn left or to the right (Shimogami, 1991). In urban and suburban areas with high motor vehicle traffic volumes, these sign should be placed at intersections so that pedestrians area not confronted with midblock work sites that will induce them to attempt skirting the work site or making a midblock crossing. There are considerations in planning for pedestrians in temporary traffic control zones:

- Pedestrians should not be led into conflicts with vehicles moving through or around the work site.
- Pedestrians should be provided with a safe, convenient path that replicates as nearly as practical the most desirable characteristics of the existing

2.4.2.3 Modes

Modes is a different ways to perform transport. The most dominant modes of transport are road transport, water transport and rail transport. This perspective considers all access options as being potentially important, including walking, cycling, public transit, and telecommunications that substitutes for physical movement and more accessible land use. It supports an integrated view of transportation and land use systems, with attention to connections among modes and between transport and land use patterns. It values modes according to their ability to meet users' needs, and does not necessarily favor faster modes over slower modes. It supports the broadest use of transport funding, including mobility management and land use management strategies if they increase accessibility.

2.4.2.4 Land Use

Land use is as important as mobility in the quality of transportation, and different land use patterns offer different types of accessibility. Land use clustering, mix, network connectivity and pedestrian conditions all affect accessibility, as discussed below. The best location for major activity centers is where there is a combination of convenient roadway access, transit service and walk ability. The number of destinations that is located within a geographic area tends to increase with population and employment density, reducing travel distances and the need for automobile travel.

2.5 Public Transportation

2.5.1 Taxi

"Taxi" means a hire car which is engaged, by arrangements made in a public place between the person to be conveyed in it (or a person acting on his behalf) and its driver for a journey beginning there and then; and "private hire car" means a hire car other than a taxi within the meaning of this subsection. (section 23 of the 1982 Act.)

Taxis are an important element of the system not only because of the connectivity function they can have in the mobility chain but also for their ability to provide an effective proxy of the private car with some distinctive comfort characteristics in their use, such as no need to lose time parking, refueling, planning and providing maintenance and still a perception of enhanced security.

2.5.2 Domestic bus

Domestic bus is transiting on various routes of various places such as one place to another place. Practically every place in one country is reachable with domestic bus, but some of the less popular routes are offered at irregular interval.

2.5.3 Express Bus

An express bus service, also known as commuter bus service, is a service that is intended to run faster than normal bus services between the same two points. These buses usually run between the downtown sections of cities and the more area of residential suburbs or outer boroughs.

2.6 Central Business District

A central business district which is often abbreviated to CBD, usually located at the meeting point of the city's transport systems, which contains the highest percentage of shops and offices. Land values are high because of high accessibility, therefore land use is at its most intense in order to offset rent costs. In consequence, in many countries development is upwards rather than sideways.

CBD of an area will meet many or all of the following criteria:

- houses large public buildings such as libraries, churches, stations and town halls.
- contains specialist shops and branches of major department stores.
- contains social amenities such as cinema halls, clubs and theatres.
- contains little housing, but often hotels.
- contains little or no industry.
- contains offices and other professional buildings.
- contains buildings that tend to be taller than other buildings in the city (because land prices tend to be at a premium, making high-rise buildings economically favourable)
- has high pedestrian levels and the greatest parking restrictions.
- (often) is the geographical centre of the settlement.
- (often) is the area with the highest land value.
- is well connected by public transport, with large numbers of passengers.
- has high traffic levels.
- Suffer from the worst traffic congestion.

2.7 Urban Traffic Flow Theory

2.7.1 Introduction

It is hardly necessary to emphasize the importance of transportation in our lives. The indices in other countries may be somewhat different, but the importance of the transportation system, and especially the highway component of it, as we can see is just the same or even greater. While car ownership in some countries may be lower, the available highway network is also smaller leading to similar or more severe congestion problems.

Traffic flow theories seek to describe in a precise mathematical flow theory, while better understood and more easily way the interactions between the vehicles and their operators characterized through advanced computation technology, are just (the *mobile* components) and the infrastructure (the *immobile* component). The latter consists of the highway system and all its operational elements: control devices, signage, markings and etc.

As such, these theories are an indispensable construct for all models and tools that are being used in the design and operation of streets and highways. The scientific study of traffic flow had its beginnings in the 1930's with the application of probability theory to the description of road traffic (Adams 1936) and the pioneering studies conducted by Bruce D. Greenshields at the Yale Bureau of Highway Traffic; the study of models relating volume and speed (Greenshields 1935) and the investigation of performance of traffic at intersections (Greenshields 1947).